IT-21022

TOPIC NAME : DAY TIME DATE / /

* Linear Congruential Generator (LCG), which is a classic PRNG define by the recurrence,

$$x_{n+1} = (ax_n + c) \bmod m$$

where,

x is the sequence of pseudorandom numbers.

a, c and m are constant

$x_0$ is the seed.

we will choose parameters known to produce good result.

$a = 1664525$

$c = 1013904223$

$m = 2^{32}$

Seed $x_0 = 42$.

we will normalize the output $[0, 1)$ by dividing by m.

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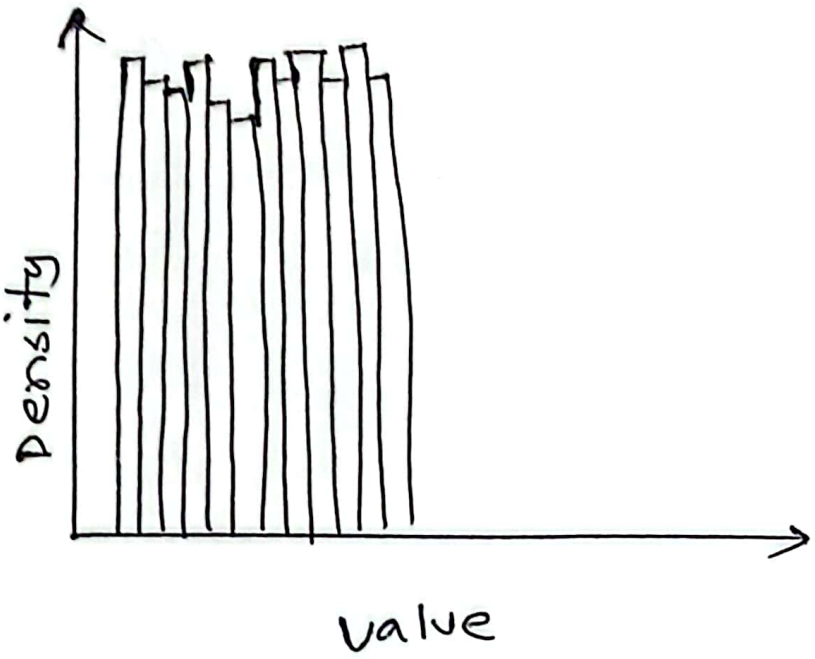
we will.

1. Generate 10,000 random numbers.
2. plot the histogram for uniformity.
3. plocat a lag plot (X vs x+1) to check for dependency.




## Interpretation of Result:

### Histogram:

The values are spread relatively evenly across the range.

- This suggest good uniformity, which is esse tial for a PRNG.